

WHAT IS CLAIMED IS:

1. An ultrasonic transducer suitable for use in a level measurement system, said ultrasonic transducer comprising:
 - a damper component;
 - a transducer, said transducer having a surface for coupling to said damper component;
 - said damper component including a plasma etched surface for bonding to the coupling surface on said transducer.
2. The ultrasonic transducer as claimed in claim 1, wherein said damper component is formed of a silicone rubber material.
3. The ultrasonic transducer as claimed in claim 2, wherein the coupling surface is formed of stainless steel.
4. The ultrasonic transducer as claimed in claim 2, wherein the surface for coupling to said damper component is formed of aluminium.
5. An ultrasonic transducer suitable for use in a level measurement system, said ultrasonic transducer comprising:
 - a transducer assembly;
 - a damper component;
 - said damper component having a plasma etched surface for bonding to at least a portion of said transducer assembly, said bonded surface transmitting vibrations from said transducer assembly.
6. The ultrasonic transducer as claimed in claim 5, wherein said transducer assembly comprises a loading block having a recess for receiving a insulating cap and being coupled to an input terminal; a metal disc coupled to said loading block through a ceramic ring, a damping washer resting in a

recess in said ceramic ring and contacting said insulating cap; a fastener securing said loading block, said insulating cap, said metal disc and said ceramic ring; and said damper component comprising a cylinder, said cylinder encircling the exterior surface of said transducer assembly, and said plasma etched surface of said damper component bonding to at least a portion of said metal disc.

7. The ultrasonic transducer as claimed in claim 6, wherein said damper component comprises silicone rubber.

8. The ultrasonic transducer as claimed in claim 6, wherein said metal disc is formed of aluminium.

9. The ultrasonic transducer as claimed in claim 7, wherein said metal disc is formed of aluminium.

10. The ultrasonic transducer as claimed in claim 6, wherein said metal disc is formed of stainless steel.

11. The ultrasonic transducer as claimed in claim 7, wherein said metal disc is formed of medical grade stainless steel.

12. A level measurement apparatus for measuring the level of a material contained in a vessel, said level measurement apparatus comprising:

a transducer module, said transducer module including a transducer for generating energy pulses in response to application of input signals, and said transducer being responsive to receiving energy pulses and converting said received energy pulses into output signals;

a transceiver module for transmitting said input signals and receiving said output signals, and said transceiver module including processing means

for processing said output signals and for determining the level of the material contained in the vessel;

a communication link for coupling said transducer module to said transceiver module;

said transducer including a damping component, said damping component being bonded to at least some components in said transducer for absorbing at least some vibrations in said transducer, so that ringing in said transducer is reduced.

13. The level measurement apparatus as claimed in claim 12, wherein said damping component comprises an elastomer, and said elastomer having a surface, and at least a portion of said surface being etched for bonding to at least some of said components in said transducer.

14. The level measurement apparatus as claimed in claim 13, wherein said elastomer comprises an inert material formed of silicone rubber.

15. The level measurement system as claimed in claim 13, wherein said etching comprises application of a plasma etching process.

16. The level measurement system as claimed in claim 14, wherein said etching comprises plasma etching.

17. The level measurement system as claimed in claim 16, wherein said component comprises an element made of stainless steel.